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AUTHOR Hemminger, Marci; Lenfestey, Karen; Miller, Joy; Shipley, Nancy

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ABSTRACT

Three tech prep teachers and one counselor at a Vermont high school examined tech prep's effectiveness in influencing students' career decisions and their intentions to receive postsecondary education. Three methods were used to collect data at the end of the third 9-week quarter of the school year: analyzing students' course selections, grades, and responses to a 10-item survey. The teacher researchers found that 14 of the 22 students enrolled in the school's Tech Prep Potential class signed up to take additional college prep courses, and 6 opted to attend a career center. Compared with other students at the high school, the Tech Prep Potential students' grade point average for science, mathematics, and English during their sophomore years averaged 0.62 points lower. This difference was attributed to the fact that meeting the standards needed to participate in the Tech Prep Potential program requires students to schedule more challenging courses than they might choose otherwise. According to the student survey, the Tech Prep Potential was most beneficial in exposing students to new careers. It was also considered valuable in explaining the importance of postsecondary education. (A four-item annotated bibliography is included. Appended is the tech prep student survey.) (MN)

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TARGET

Teachers As Researchers Gaining Excellence Together

Tech Prep Potential at Goshen High School

Team Members

Marci Hemminger
Karen Lenfestey
Joy Miller
Nancy Shipley

Goshen High School

April 22, 1999

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TARGET ABSTRACT

Research Topic:

Tech Prep Potential

Question Researched:
How effective is Tech Prep Potential in influencing students' career decisions and their intentions to receive post secondary education?

Methods Used to Research:
We utilized three different methods of data collection: analyzing student's course selections, grades, and responses on a student survey. These methods allowed us to understand the impact of the Tech Prep Potential Program. All of the data was gathered in March 1999 at the end of the third nine weeks in order to ensure a more comprehensive study of our group of students. Additionally, waiting for next year's scheduling to be complete necessitated the data collection time.

Findings in Terms of Effects on Student Learning:
We wanted to see if our students continued taking challenging, college prep classes after spending their sophomore year in Tech Prep Potential. Students only need two years of math and science in order to meet graduation requirements. These students would be exceeding these requirements by taking math and science their junior year. Overall, we found that the majority of students enrolled in Tech Prep Potential signed up to take additional college prep classes. 63% will take chemistry next year and 100% will take the next math level. 27% of our students plan to attend the career center.

We also decided to compare student achievement in three core classes in 9th and 10th grade by calculating a GPA based solely on English, math, and science grades. Since Tech Prep Potential students were scheduled into more challenging courses than they might not otherwise have taken, we expected their grades to reflect that. The data that was collected confirmed our initial thoughts. The average decrease for the GPA in the three classes is approximately 0.62 points, which would be similar to a letter grade decrease of an A to a B+.

A final assessment of the success of this program is the students' reactions. We created a survey with ten statements and asked the students to rank their agreement on a scale from 1 to 5. Our survey showed that Tech Prep Potential was most beneficial in introducing students to new careers. The least helpful aspect of the program was fostering improved attendance, which was not one of its main goals.

Ways students were involved in the process of Inquiry and Reflection:

Students had the opportunity to voice opinions through the survey. There was a comment section on the back of the survey where many students chose to write personal messages that each of the educators involved in the program were able to read. Additionally, the choices they made regarding various core classes to take as juniors affected our research.

Ways to Apply Your Learnings:

This Target Action Research Process was helpful to us as we make modifications to Tech Prep Potential. As a result of our study, we plan to "recruit" incoming freshmen. Our criteria will include course grades and ISTEP scores. We would also like to include eighth grade counselor recommendations. As our schedule permits, we're planning to break up the afternoon block of Tech Prep students, perhaps making a shift to the morning and discouraging a particular order of classes.

Team Members:

Marci Hemminger, Karen Lenfestey, Joy Miller, and Nancy Shipley

School:

Goshen High School

Date:

April 22, 1999

I. Introduction

According to Indiana Workforce Development the changing workplace means an increased demand for skilled workers. In the year 2000, 85% of all jobs will require additional job-specific training beyond high school. Only 15-20% of jobs will require a four year college degree. Therefore, many of the remaining jobs could be acquired after training at a technical school, vocational school or 2-year college. These are dramatic differences from the workplace of the 1950's where the majority could find a job straight out of high school. In fact, in the 1950's 60% of jobs were unskilled positions whereas in the year 2000 65% of jobs will be skilled (School-to-Careers presentation, 1997).

Based on the future work environment, the majority of students will need training after high school but not necessarily in a traditional college setting. This is a paradigm shift for parents and students. Evidence suggests that Hoosiers have an especially difficult time understanding the need for technical and two year schools. A 1998 survey of Indiana juniors shows that 64% intend to go on to a four-year college and only 17% plan on receiving an Associate's degree or training of less than two years after high school (Indiana Career and Post secondary Advancement Center, 1998). In Indiana 80% of college students are in four year colleges and only 20% are in two year colleges. Compare this to the rest of the country where 54% of college students attend 4-year colleges and 46% attend two year colleges (School-to-Careers presentation, 1997). Of course, this is due in part because Indiana lacks a community college system. Regardless of the reasons, many Indiana students are not receiving the training necessary to succeed in the jobs of the 21st century.

The need for parents and students to consider technical careers inspired a program at Goshen High School called Tech Prep Potential. Tech Prep Potential is a miniature school-within-a-school which emphasizes technical careers and training. Students in the program have English, math and science classes together. Another

component of the program involves career guest speakers, career videos and field trips to schools. Time spent together in class and on field trips was intended to create a bond between students and their teachers. Although some days are spent on trips or learning about careers, the curriculum for these three classes was not altered in any other way.

A similar school-within-a-school program at Ben Davis High School provided the outline for this program. Their program is called College Potential and their goal is to provide academic and social support throughout high school and to encourage enrollment in college. Selection for this program is rather competitive, based upon academic potential, desire to go to college and risk factors which may prevent their matriculation in college. College Potential has had 80-88% of its students matriculate immediately after high school graduation in either two or four year colleges for the past five years (College Potential matriculation statistics, 1998). The success of this program influenced the development of Tech Prep Potential.

Students in Integrated Math, Integrated Science and Basic English as GHS freshmen were invited to participate in Tech Prep Potential as sophomores. (Unlike College Potential, GHS did not screen students based on academic performance. In fact, these students are some of the weaker in their graduating class). By spring 1999 the Tech Prep Potential class consisted of 22 students, 13 female and 9 male. The majority of students are Caucasian but two are Hispanic, one is biracial and one is Asian. One student is classified as a 504 and two have learning disabilities.

In the first year of the Tech Prep Potential program, students participated in seven field trips and heard from several career awareness speakers/videos. Trips included visits to Indiana University-South Bend, ITT in Fort Wayne, Rollpak (local factory which is automated), Elkhart Area Career Center, Southwestern Michigan College, Ivy Tech and Purdue University. Careers studied included dental assisting, draftsperson, tool and die maker, engineer technician, aircraft mechanic, police officer,

legal secretary, advertising creator and veterinary technician.

Students were together for three classes first semester but only had one class (Biology) together second semester. This occurred because Goshen High School has a policy that students who fail ISTEP be placed in small classes to focus on their math and English skills. Unfortunately this interfered with our miniature school-within-a-school concept, but students continued with the career awareness and field trip aspects of the program throughout the year.

According to the Indiana Career and Post secondary Advancement Center (ICPAC) only 23% of Indiana juniors have visited a college campus and only 8% have spoken with a college representative (1998 survey of 56,345 students). Goshen High School's percentages were even lower than the states. Only 15% of GHS juniors indicated that they had visited a college campus and 3% had spoken with a college representative. By providing field trips to technical schools and colleges, we are exposing students to campuses that they might otherwise never see.

Since we want Goshen High School students to be well-prepared for the future workforce, the goal of Tech Prep Potential was to encourage students to attend post-secondary education. Helping students transition from high school to additional education is a priority at Goshen High School. In fact, Goshen High School is earning a Transitions Endorsement through North Central Accreditation and Tech Prep Potential supports this effort.

Through class activities and field trips students should have gained a better understanding of the link between education and their career goals. By researching the effects of Tech Prep Potential we can see if the program needs to be revised, continued or ended. This led us to ask, "How effective is Tech Prep Potential in influencing students' career decisions and their intentions to receive post-secondary education?"

II. Methods/Results/General Setting

A. Investigators

The research team consisted of three teachers and one counselor at Goshen High School. Since these are the people who teach the Tech Prep Potential classes and coordinate its activities, they have a vested interest in the effectiveness of the program. Marci Hemminger was the students' English 10 Communications teacher first semester but she does not have the students second semester. Some of them are in her English Lab class since they failed ISTEP and some are with other English teachers. The same is true for Joy Miller, the Algebra Hands-On instructor, who also teaches Math Lab. Nancy Shipley, the Biology teacher, is the only one who still has the entire group of Tech Prep Potential students together in her class. Even though the students may not have English and math together, the teachers still interact with the students when they go on field trips. Karen Lenfestey, the counselor in the group, serves as the coordinator of field trips and chaperones the trips with the teachers.

B. Data Collection

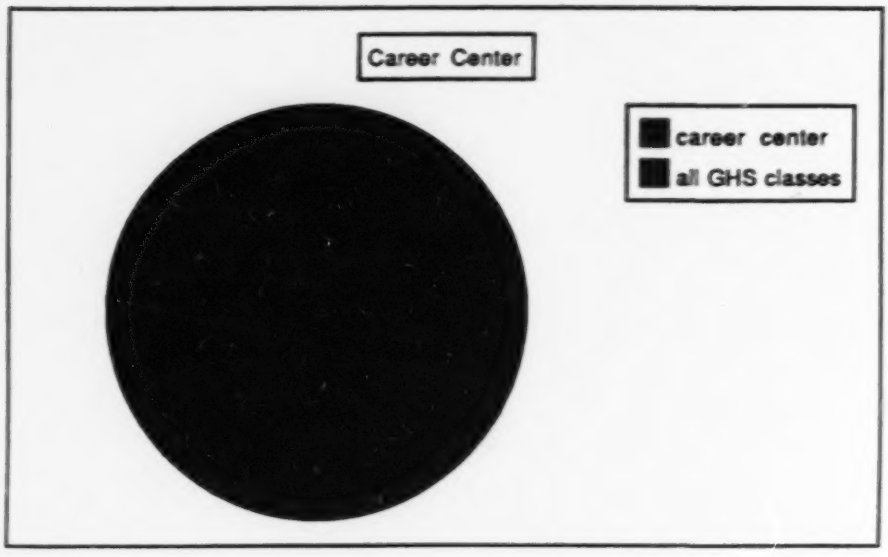
In order to achieve triangulation, we utilized three different methods of data collection: analyzing students' course selections, their grades and their responses on a student survey. These methods allowed us to understand the impact of the Tech Prep Potential program. All of the data was gathered in March 1999 at the end of the third nine weeks. Waiting for next year's scheduling to be complete and for the students to have experienced the majority of the Tech Prep Potential program necessitated this data collection time.

1. Course Selections

a. Since Tech Prep Potential is designed to push students toward post-secondary education, it is important that they take appropriate classes in high school. Therefore, we wanted to see if they continued taking challenging, college-prep classes after spending their sophomore year in Tech Prep Potential. Students

only need two years of math and science in order to meet graduation requirements. These students would be exceeding these requirements by taking math and science their junior year. Another aspect of their course selections we looked at is if they will take classes at the Elkhart Area Career Center. Choosing to attend classes at the career center shows that students are focusing on their future career.

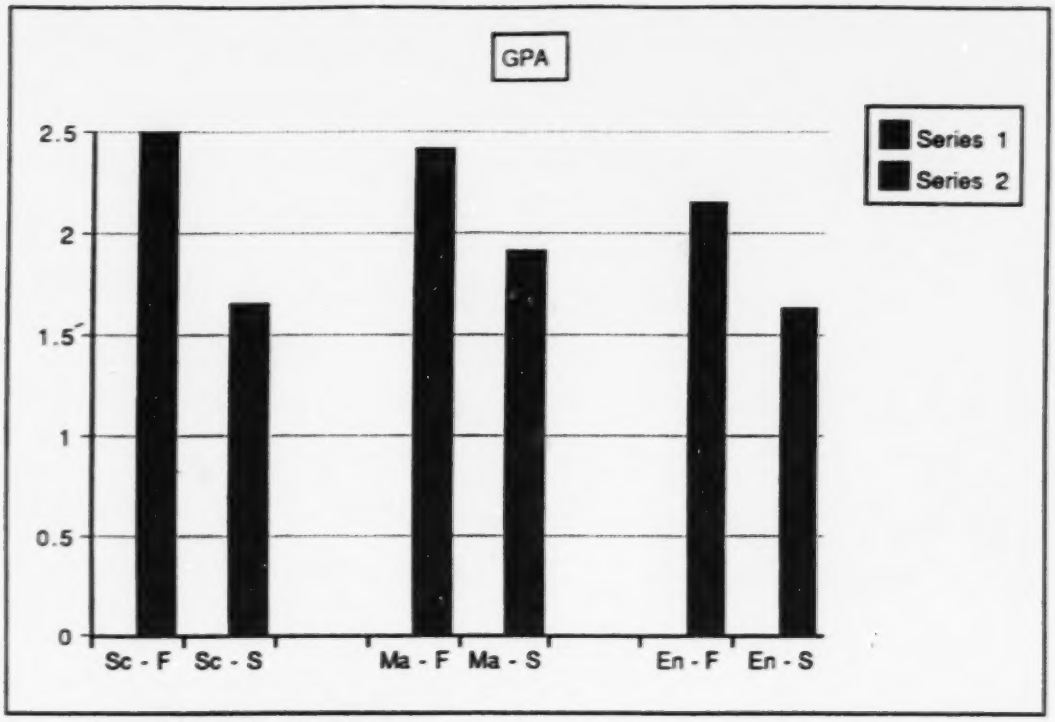
b. Overall, we found that the majority of the students enrolled in Tech Prep Potential signed-up to take additional college-prep classes. A few of them chose to receive training at the Elkhart Area Career Center. Fourteen of the 22 students (63%) will take chemistry next year and all 22 (100%) will take the next level of math. Six students (27%) will attend the career center.



2. Student Grades

a. We decided to compare student achievement in three core classes in 9th and 10th grade by calculating a GPA based solely on English, math, and science grades. Since Tech Prep Potential students were scheduled into more challenging courses than they might not otherwise have taken, we expected their grades to reflect that fact. For example, the majority of the students would have taken Integrated Science II as sophomores rather than Biology. However to meet the standards needed to participate in the program, they had to choose Biology.

b. The data that was collected confirmed our initial thoughts regarding the decrease in GPA. We collected transcripts for each of the 21 students participating in the program. An individualized GPA was calculated for science, math, and English for the students' freshmen and sophomore years. The resulting data is an average of the 21 students' GPA in each of the core areas. The average decrease for the GPA in the three classes is approximately 0.62 points, which would be similar to a letter grade decrease of an A to a B+. The chart is a more detailed comparison of the average GPA for each subject and school year.



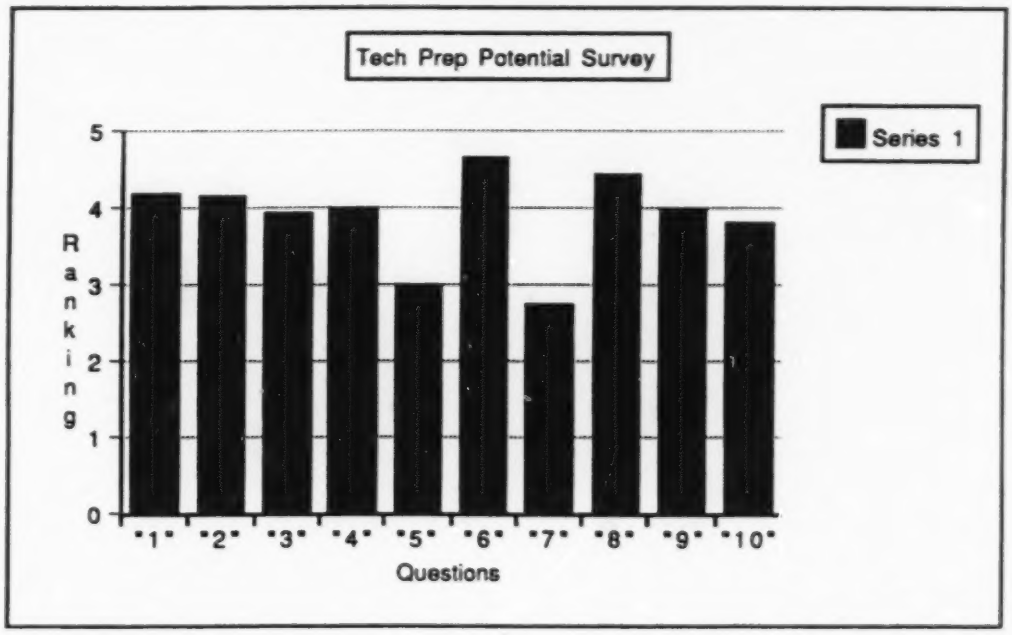
3. Student Surveys

a. A final assessment of the success of this program is the students' reactions. We created a survey with ten statements and asked the students to rank their agreement on a scale from 1 to 5. The surveys were administered during their Biology class by Nancy Shipley. She told the students to be completely honest because we wanted to know what they thought was positive and what should be changed. The survey also included a space for comments which several students chose to fill in. The survey was intended to get a student's perspective on how the career interventions affected their educational attitudes and opinions about post secondary education.

b. The survey was divided into two sections. Section I was a series of five statements dealing with how Tech Prep Potential helped to expose various educational and career opportunities within the high school realm. Our survey showed that Tech Prep Potential was most beneficial in introducing students to

new careers. Out of a possible five points, this item received an average of 4.2 from surveyed students. Nearly as valuable, according to the students, was emphasis placed on the importance of post secondary education. On the opposite end, the least helpful aspect of Tech Prep Potential was fostering improved attendance.

In section II, the emphasis was on changing attitudes towards education in general and the effect Tech Prep potential had on course selection. Our survey showed that it was most helpful to students to be with the same group each afternoon. Fortunately, students rated that nearly as important as being with each other was the guidance they received when deciding which classes to schedule for the following semester. As one student reported "I like Tech Prep. It made me close to the people in it and we had fun. Also, I really didn't want to go to college, but now I'm really considering it."



(See Appendix for copy of survey)

III. Discussion

a. Conclusion Our conclusions are consistent with current data. Because

each content teacher focused on making applications to real world situations, students felt exposed to various career options and the need for post-secondary instruction. As a result, better choices were made by the students when deciding courses to pursue next semester. "The purpose of the guidance component is to present a sequence of activities designed to help students plan and develop their career options " (What is Tech Prep, 1998). We were pleased with the decision by most students to pursue more math and science classes as juniors. Additionally, the students' decisions to support the career center fits ideally with our goal of finding occupations for students that don't require a four year college degree. Because there is little data available on Tech Prep clusters' affects on student grades, our information must stand isolated at this point. We had hoped for more significant increases academically, but are encouraged by even the slightest growth.

b. Recommendations for Action

The influence the Tech Prep Potential class has had on individual students has been very positive. As we look to next year, the program will have some recommended changes.

First, we will be looking at the incoming freshmen class instead of sophomores. Second, freshmen will be chosen by course grades and whether they passed the ISTEP in eighth grade. We want our students to be ready for Biology and Algebra as freshmen. This change was made because of the sophomore ISTEP that many of our current students did not pass. We were forced to break our continuity second semester as students who did not pass the ISTEP needed to enroll in additional math and English classes. Third, we want eighth grade counselor recommendations for students that are still at risk for post secondary education, but still meet the above mentioned criteria.

As a continuation of this year's research, we will be keeping track of our current students as they move through their junior, senior and post secondary work. This has

been a rewarding experience for both students and educators. We feel we have addressed a problem at our school and will continually strive to make improvements in a program that prepares individuals to succeed in a changing and more technological world.

Annotated Bibliography

College Potential Matriculation Statistics, compiled by Mary Frentz at Ben Davis High School, 1998. This is a follow-up phone survey of former College Potential students to determine if they actually enrolled in college immediately following high school graduation. It lists students by 4 and 2 year colleges, in Indiana and out-of-state.

Gopher://gopher.ed.gov is a website created by Nebraska Tech Prep Education. It describes the components needed to begin a Tech Prep program in a high school as well as helps to explain the definition of a standard Tech Prep program.

Indiana Career and Post secondary Advancement Center survey of Indiana students, 1998. 56,345 students surveyed. This survey is given to all juniors in Indiana high schools during the school day. The results are broken down for individual schools as well as an overview of the state.

School-to-Careers presentation at Indiana Association of College Admissions Counselors, 1997. This power-point presentation was titled "Developing a School-to-Careers Transition System--Helping all students prepare for successful futures". It emphasized the changing workplace and predicted job skills required in the year 2000.

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Appendix

Tech Prep Potential
Student Survey

Read each item carefully and circle the number that best corresponds with your thoughts about your experience this past semester. The scale is designed to determine Tech Prep Potential's level of helpfulness with one as least helpful and five as most helpful.

I. Tech Prep Potential helped to:

1. Expose me to new careers	1	2	3	4	5
2. Show me how important education is after high school	1	2	3	4	5
3. Make me aware of different businesses in the area	1	2	3	4	5
4. Provide first-hand information from guest speakers in various careers	1	2	3	4	5
5. Improve my attendance	1	2	3	4	5

II. It was helpful to me to:

6. Be with the same students each afternoon	1	2	3	4	5
7. Fill out surveys after each field trip	1	2	3	4	5
8. Have guidance when deciding which classes to take next year	1	2	3	4	5
9. Learn about the importance of continuing my education after high school	1	2	3	4	5
10. Become aware of opportunities within our school (YEP, career center, mentorship programs, etc.)	1	2	3	4	5

Please feel free to write any comments on the back of the survey.